



Analytical Industries Inc.
Advanced Instruments Inc.

Material Safety Data Sheet - MSDS

Product Identification

Product Name Oxygen Sensor Series - PSR, GPR, AII, XLT
Synonyms Electrochemical Sensor, Galvanic Fuel Cell
Manufacturer Analytical Industries Inc., 2855 Metropolitan Place, Pomona, CA 91767 USA
Emergency Phone Number 909-392-6900
Preparation / Revision Date January 1, 1995
Notes Oxygen sensors are sealed, contain protective coverings and in normal conditions do not present a health hazard. Information applies to electrolyte unless otherwise noted.

Specific Generic Ingredients

Carcinogens at levels > 0.1% None
Others at levels > 1.0% Potassium Hydroxide or Acetic Acid, Lead
CAS Number Potassium Hydroxide = KOH 1310-58-3 or Acetic Acid = 64-19-7, Lead = Pb 7439-92-1
Chemical (Synonym) and Family Potassium Hydroxide (KOH) – Base or Acetic Acid (CH₃CO₂H) – Acid, Lead (Pb) – Metal

General Requirements

Use Potassium Hydroxide or Acetic Acid - electrolyte, Lead - anode
Handling Rubber or latex gloves, safety glasses
Storage Indefinitely

Physical Properties

Boiling Point Range KOH = 100 to 115° C or Acetic Acid = 100 to 117° C
Melting Point Range KOH -10 to 0° C or Acetic Acid – NA, Lead 327° C
Freezing Point KOH = -40 to -10° C or Acetic Acid = -40 to -10° C
Molecular Weight KOH = 56 or Acetic Acid – NA, Lead = 207
Specific Gravity KOH = 1.09 @ 20° C, Acetic Acid = 1.05 @ 20° C
Vapor Pressure KOH = NA or Acetic Acid = 11.4 @ 20° C
Vapor Density KOH – NA or Acetic Acid = 2.07
pH KOH > 14 or Acetic Acid = 2-3
Solubility in H₂O Complete
% Volatiles by Volume None
Evaporation Rate Similar to water
Appearance and Odor Aqueous solutions: KOH = Colorless, odorless or Acetic Acid = Colorless, vinegar-like odor

Fire and Explosion Data

Flash and Fire Points Not applicable
Flammable Limits Not flammable
Extinguishing Method Not applicable
Special Fire Fighting Procedures Not applicable
Unusual Fire and Explosion Hazards Not applicable



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Reactivity Data

Stability	Stable
Conditions Contributing to Instability	None
Incompatibility	KOH = Avoid contact with strong acids or Acetic Acid = Avoid contact with strong bases
Hazardous Decomposition Products	KOH = None or Acetic Acid = Emits toxic fumes when heated
Conditions to Avoid	KOH = None or Acetic Acid = Heat

Spill or Leak

Steps if material is released	Sensor is packaged in a sealed plastic bag, check the sensor inside for electrolyte leakage. If the sensor leaks inside the plastic bag or inside an analyzer sensor housing do not remove it without rubber or latex gloves and safety glasses and a source of water. Flush or wipe all surfaces repeatedly with water or wet paper towel (fresh each time).
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Disposal

In accordance with federal, state and local regulations.

Health Hazard Information

Primary Route(s) of Entry	Ingestion, eye and skin contact
Exposure Limits	Potassium Hydroxide - ACGIH TLV 2 mg/cubic meter or Acetic Acid - ACGIH TLV / OSHA PEL 10 ppm (TWA), Lead - OSHA PEL .05 mg/cubic meter
Ingestion	Electrolyte could be harmful or fatal if swallowed. KOH = Oral LD50 (RAT) = 2433 mg/kg or Acetic Acid = Oral LD50 (RAT) = 6620 mg/kg
Eye	Electrolyte is corrosive and eye contact could result in permanent loss of vision.
Skin	Electrolyte is corrosive and skin contact could result in a chemical burn.
Inhalation	Liquid inhalation is unlikely.
Symptoms	Eye contact - burning sensation. Skin contact - soapy slick feeling.
Medical Conditions Aggravated	None
Carcinogenic Reference Data	KOH and Acetic Acid = NTP Annual Report on Carcinogens - not listed; LARC Monographs - not listed; OSHA - not listed
Other	Lead is listed as a chemical known to the State of California to cause birth defects or other reproductive harm.

Special Protection

Ventilation Requirements	None
Eye	Safety glasses
Hand	Rubber or latex gloves
Respirator Type	Not applicable
Other Special Protection	None

Special Precautions

Precautions	Do not remove the sensor's protective Teflon and PCB coverings. Do not probe the sensor with sharp objects. Wash hands thoroughly after handling. Avoid contact with eyes, skin and clothing. Empty sensor body may contain hazardous residue.
Transportation	Not applicable